	<b>RESOURCE MANAGEMENT DIVISION POLICY AND PROCEDURE</b>		DEPARTMENT OF ENVIRONMENTAL QUALITY
<b>Original Effective Date:</b> July 16, 2012	<b>Subject:</b> Format for Solid Waste Disposal Facility Monitoring Submittals		<b>Category:</b> <input type="checkbox"/> Internal/Administrative <input checked="" type="checkbox"/> External/Noninterpretive <input type="checkbox"/> External/Interpretive
<b>Revised Date:</b>	<b>Division/Office and Program Names:</b> RMD – Solid Waste and Land Application Section		
<b>Reformatted Date:</b>	<b>Number:</b> RMD-115-29	<b>Page:</b> 1 of 3	

*A Department of Environmental Quality (DEQ) Policy and Procedure cannot establish regulatory requirements for parties outside of the DEQ. This document provides direction to DEQ staff regarding the implementation of rules and laws administered by the DEQ. It is merely explanatory; does not affect the rights of, or procedures and practices available to, the public; and does not have the force and effect of law.*

#### **INTRODUCTION, PURPOSE, OR ISSUE:**

The purpose is to convey a new methodology for submittal of hydrogeologic monitoring results and related statistical reports by solid waste disposal facilities, for staff to use in reviewing and recommending an approvable format for solid waste monitoring submittals.

#### **AUTHORITY:**

Part 115, Rules 299.4907 and 299.4908

#### **STAKEHOLDER INVOLVEMENT:**

Michigan Waste Industry Association provided comment on the concepts of this policy during its development.

#### **DEFINITIONS:**

N/A

#### **POLICY:**

The Department of Environmental Quality (DEQ), Resource Management Division (RMD), is transitioning from accepting monitoring data in bound paper reports, to requesting that data be submitted in a uniform electronic format, pursuant to Rule 299.4907(11) and Rule 299.4908(6) of Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. This will streamline the submittal review process and allow for independent analysis of the data, to assure compliance with the program requirements of Part 115. It will also reduce file space needed for storage of these reports.

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**PROCEDURES:**

It is proposed that each solid waste disposal facility begin to submit their future monitoring reports to the district DEQ office on a compact disc (CD) in the format described below, beginning as soon as feasible for the facility. The report will be stored and backed up electronically in the district office, and will be used to determine compliance with the requirements of Part 115 as is current practice. The DEQ will evaluate this process during a transition period of at least one year, make adjustments as necessary, and then determine if the procedure should become mandatory. The DEQ will also explore alternate submittal methods, such as e-mail or a Web-based server. All requirements will be clearly conveyed to the solid waste disposal facilities prior to implementation.

It is requested that the CD submittals contain two files: a PDF version of the entire report including statistical analyses and data tables, and a spreadsheet of just the analytical data including all required groundwater, surface water, leachate, and leak detection sample results. The two files should be formatted as described below in order to facilitate DEQ review. Type II solid waste disposal facilities may store these reports electronically as part of their operating record, as long as a means for review is provided during DEQ inspections, and proper backup of the electronic files is assured. This CD should be submitted along with a hard copy of a cover letter bearing the signature of the certified professional responsible for the report's contents, as well as a hard copy of both the groundwater contour map and the summary table described in Appendix A.

The proposed PDF report format (Appendix A) specifies the order and content of the full monitoring report. This includes all of the required components of a solid waste monitoring submittal. The DEQ is also requesting the inclusion of a summary table of all groundwater-monitoring results that have exceeded their statistical limits for the current sampling event and the three preceding events. An example of this table is provided in Appendix B. This is the same table that is currently utilized as a component of comprehensive landfill inspections, as a means to determine if there are data trends present. It is important to note that the statistical exceedances reported in this table do not necessarily represent statistically significant increases (SSI's) as defined by Rule 105(n), since each solid waste disposal facility determines SSI's based on the procedure outlined in their individual hydrogeologic monitoring plan.

The electronic spreadsheet format for submittal of all monitoring data is outlined in detail in Appendices C, D, and E. This format is consistent with laboratory information management systems and compatible with Sanitas®, the statistical software package used by DEQ district geologists. The data format has been confirmed to be consistent with the Environmental Sampling and Reporting Standards, created by the Environmental Data Standards Council. This procedure is also consistent with the current practices of many other state regulatory agencies. It may be helpful for facilities to provide some legacy data in this format to the DEQ as well, as a means of establishing a consistent background data set for the purposes of statistical evaluation. However, this is not being specifically requested at this time.

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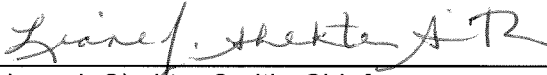
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This initiative is aimed at both facilitating and expediting review of the monitoring reports and reducing file storage space. Hopefully, this will also be a beneficial step for solid waste disposal facilities. If there are questions or concerns generated as we move forward with this process, please address them to the appropriate district supervisors. Suggestions will be evaluated for incorporation into the final procedure.

**APPENDICES:**

A-E

DIVISION CHIEF APPROVAL:

  
\_\_\_\_\_  
Liane J. Shekter Smith, Chief  
Resource Management Division

7/16/2012  
Date

RESOURCE MANGAEMENT DIVISION  
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**Subject:** Appendix A - Solid Waste Monitoring Submittal Components (PDF)

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1. Statement regarding adherence to (or deviation from) the solid waste facility's approved Hydrogeological Monitoring Plan, with regard to sampling locations, analytical parameters, sampling technique, lab methodology, etc.
2. Brief description of the sampling event, including groundwater, surface water, leachate, and secondary collection system monitoring, as applicable.
3. Groundwater flow direction, rate, and map for the current sampling event, pursuant to Rule 907(5).\*
4. A Groundwater Monitoring Exceedance Summary Table, to contain statistical exceedances from the current reporting event and the three preceding events, starting with Rule 450 parameters and proceeding to Rule 454 parameters, in the format shown in Appendix B.\*
5. Discussion of statistical limit exceedances, including the need for resampling and/or a determination as to whether they constitute statistically significant increases (SSI's) pursuant to Rules 105(n), 318(9) and/or 440(8), and/or exceedances of Part 201 criteria.
6. Alternate source demonstrations for the SSI's, including supporting documentation, unless these will be provided in a separate submittal.
7. Laboratory analytical results
8. Chain of custody information
9. Field forms
10. Other supporting documentation, as applicable. Laboratory Quality Assurance/Quality Control data need not be submitted, but must be kept in the facility's operating record and supplied upon request. Analytical data from field and sampling blanks should be submitted.
11. Signature of certified professional responsible for contents of report on the cover letter.\*

\*These items should be submitted in hard copy, as well as contained in the electronic report file.

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**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**SUMMARY OF STATISTICAL EXCEEDANCES**

DATE:

COMMENTS:

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Subject: Appendix C – Format of Electric Submittal of Laboratory Analysis Data - Example

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A	B	C	D	E	F	G	H	I	J	K	L	M
FacilitySite Identifier	MonitoringLocation Identifier (max 16 chars., no spaces)	ComplianceMonitoring Date	CASRegistry Number	SubstanceName (from Appendix D)	MeasureValue (no spaces)	MeasureUnitCode	Reporting Limit	MeasureQualifier Code	SampleAnalyticalMethod	PreparationStartDate	AnalysisEndDate	AnalysisComments (lab designation)
409032	MW3A	2007-07-23	SW301	chlorides	<0.18	ug/L	0.18	U	SW846 8260B	2007-07-22	2007-07-23	2007-29
409032	MW7	2007-07-23	SW301	chlorides	50	ug/L	0.04	J	SW846 6020	2007-07-22	2007-07-27	2007-29
409032	surfacewater01	2007-07-23	SW301	chlorides	100	ug/L	0.04		SW846 6020	2007-07-22	2007-07-22	2007-29
409032	LCSSump2	2007-07-23	106-46-7	dichlorobenzene	<1	ug/L	1		8260	2007-07-22	2007-07-22	2007-29

## Column Descriptions

Column	Description	Example(s)	DATA FORMAT
A	FacilitySiteIdentifier	409032	The facility Waste Data System (WDS) number, which is typically included in the subject line of all state correspondence to the facility. (ESAR: Facility Site ID, D.S. 1.1.1)
B	MonitoringLocationIdentifier	MW3A	Number and/or name assigned to each sampling location with no spaces within the name. Maximum of 16 characters (ESAR: Monitoring Location, D.S. 2.1)
C	ComplianceMonitoringDate	2007-07-23	The date the MonitoringLocationIdentifier was sampled. The preferred format is the ANSI/ISO date standard of YYYY-MM-DD, which is available in recent versions of Excel under date format English (Canada). If the capability for this format does not yet exist, the format MM/DD/YYYY will be accepted on an interim basis. (ESAR: Enforcement & Compliance, DS 1.1)
D	CASRegistryNumber	74-87-3	CAS registry number for the parameter/analyte. If no CAS number has been assigned, the CAS number becomes the ERMD list number, preceded by SW, i.e., SW348 for carbonate (as CaCO3). Likewise, if two parameters share a CAS #, DNRE has assigned one to be the SW number, such as with barium, dissolved, which is listed with a CAS number of SW435. (ESAR: Chemical ID, D.S. 1.2)
E	SubstanceName	barium, dissolved	Name of parameter/analyte/constituent (ESAR: Analysis & Results, D.S. 7.2)
F	MeasureValue	10	Result of analysis as reported by the laboratory in units of micrograms per liter (ug/l). If less than symbol is used, i.e., <0.5, there should be no space between the less than symbol and the number. (ESAR: Measure, D.S. 1.1)
G	MeasureUnitCode	ug/L	Unit of measure in which the results are reported. The preferred concentration unit is ug/l, even for metals. Obtain approval of the district geologist if another unit measure becomes necessary. For pH, standard units, abbreviated S.U., capital letters with each letter followed by a period, must be used. For field or laboratory conductivity, choose uS/cm for microSiemens per centimeter. (ESAR: Measure, D.S. 1.2)
H	ReportingLimit	0.18	Constituent concentration that, when processed through the complete method, produces a signal that is statistically different from a blank. (ESAR: Analysis & Results, 8.15)
I	MeasureQualifierCode	U	Laboratory data qualifier code or "flag." DNRE Environmental Laboratory codes, as listed in Appendix E, are preferred. Others may be used (5 character limit) if a table of qualifiers is provided. (ESAR: Measure, D.S. 1.3)
J	SampleAnalyticalMethod	EPA8260B	Analytical method used to analyze the constituents. (ESAR: Analysis & Results, 6.3)

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Column	Description	Example(s)	DATA FORMAT
K	PreparationStartDate	2007-07-23	The calendar date the preparation/extraction of the sample for analysis began. See ComplianceMonitoringDate for acceptable date format. (ESAR: Analysis & Results, D.S. 5.5)
L	AnalysisEndDate	2007-07-24	The calendar date that the analysis was completed and an analytical result obtained. See ComplianceMonitoringDate above for acceptable date formats. (ESAR: Analysis & Results, 6.10)
M	AnalysisCommentsText	142356-2009	This can be used by laboratories to place any internal tracking number or information so that the data can be accessed in the future by laboratory staff (ESAR: Analysis & Results, 6.12)

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**Subject:** Appendix D – Abbreviated Substance Name Reference List

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(information for additional substances is available)

Part 115 Rule Citation	CAS Registry Number or solid waste number if none	List Number	Substance Name	Synonyms (do not use)
299.4907	SW427	427	groundwater elevation (feet)	SWL; static water level
299.4440	SW320	320	pH (field)	
299.4440	SW323	323	specondfield	
299.4450	SW301	301	chlorides	
299.4450	SW448	448	iron, dissolved	
299.4450	7439-89-6	340	iron, total	
299.4450	14808-79-8	315	sulfate	
299.4450	SW311	311	total dissolved solids	
299.4450	SW443	443	total inorganic nitrogen	
299.4451	SW347	347	bicarbonate (as caco3)	
299.4451	7440-42-8	428	boron, total	
299.4451	7440-70-2	375	calcium, total	
299.4451	SW348	348	carbonate (as caco3)	
299.4451	SW317	317	chemical oxygen demand	
299.4451	57-12-5	58	cyanide	
299.4451	7439-95-4	376	magnesium, total	
299.4451	7439-96-5	342	manganese, total	
299.4451	108-95-2	177	phenol	
299.4451	7440-09-7	377	potassium, total	
299.4451	7440-23-5	322	sodium, total	
299.4451	e-10195	357	total organic carbon	
299.4452	SW433	433	antimony, dissolved	
299.4452	7440-36-0	13	antimony, total	
299.4452	SW434	434	arsenic, dissolved	
299.4452	7440-38-2	14	arsenic, total	
299.4452	SW435	435	barium, dissolved	
299.4452	7440-39-3	15	barium, total	
299.4452	SW436	436	beryllium, dissolved	
299.4452	7440-41-7	23	beryllium, total	
299.4452	7440-43-9	34	cadmium, dissolved	
299.4452	SW437	437	cadmium, total	
299.4452	SW447	447	chromium, dissolved	
299.4452	7440-47-3	51	chromium, total	
299.4452	SW438	438	cobalt, dissolved	
299.4452	7440-48-4	53	cobalt, total	
299.4452	SW439	439	copper, dissolved	
299.4452	7440-50-8	54	copper, total	
299.4452	SW440	440	lead, dissolved	
299.4452	7439-92-1	131	lead, total	
299.4452	SW441	441	nickel, dissolved	
299.4452	7440-02-0	152	nickel, total	
299.4452	SW448	449	selenium, dissolved	



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Part 115 Rule Citation	CAS Registry Number or solid waste number if none	List Number	Substance Name	Synonyms (do not use)
299.4452	7782-49-2	183	selenium, total	
299.4452	SW450	450	silver, dissolved	
299.4452	7440-22-4	184	silver, total	
299.4452	SW442	442	thallium, dissolved	
299.4452	7440-28-0	194	thallium, total	
299.4452	SW444	444	vanadium, dissolved	
299.4452	7440-62-2	209	vanadium, total	
299.4452		445	zinc, dissolved	
299.4452	7440-66-6	213	zinc, total	
299.4453	630-20-6	190	1,1,1,2-tetrachloroethane	
299.4453	71-55-6	200	1,1,1-trichloroethane	methylchloroform
299.4453	79-34-5	191	1,1,2,2-tetrachloroethane	
299.4453	79-00-5	202	1,1,2-trichloroethane	
299.4453	75-34-3	75	1,1-dichloroethane	ethylidene chloride
299.4453	75-35-4	77	1,1-dichloroethene	1,1-dichloroethylene
299.4453	96-18-4	206	1,2,3-trichloropropane	
299.4453	95-50-1	69	1,2-dichlorobenzene	o-dichlorobenzene
299.4453	107-06-2	76	1,2-dichloroethane	ethylene dichloride
299.4453	78-87-5	82	1,2-dichloropropane	
299.4453	106-46-7	71	1,4-dichlorobenzene	p-dichlorobenzene
299.4453	71-43-2	16	benzene	
299.4453	75-27-4	29	bromodichloromethane	dibromochloromethane
299.4453	75-25-2	30	bromoform	tribromomethane
299.4453	74-83-9	136	bromomethane	methyl bromide
299.4453	56-23-5	36	carbon tetrachloride	
299.4453	108-90-7	39	chlorobenzene	
299.4453	75-00-3	41	chloroethane	ethyl chloride
299.4453	67-66-3	44	chloroform	trichloromethane
299.4453	156-59-2	78	cis-1,2-dichloroethylene	vinylidene chloride; cis-1,2-dichloroethene
299.4453	10061-01-5	86	cis-1,3-dichloropropylene	cis-1,3-dichloropropene
299.4453	124-48-1	66	dibromochloromethane	chlorodibromomethane
299.4453	100-41-4	110	ethylbenzene	
299.4453	74-87-3	137	methyl chloride	chloromethane
299.4453	74-88-4	142	methyl iodide	iodomethane
299.4453	74-95-3	139	methylene bromide	dibromomethane
299.4453	75-09-2	140	methylene chloride	dichloromethane
299.4453	100-42-5	186	styrene	
299.4453	127-18-4	192	tetrachloroethene	tetrachloroethylene; perchloroethylene
299.4453	108-88-3	196	toluene	
299.4453	156-60-5	79	trans-1,2-dichloroethene	trans-1,2-trichloroethylene
299.4453	10061-02-6	87	trans-1,3-dichloropropene	

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Part 115 Rule Citation	CAS Registry Number or solid waste number if none	List Number	Substance Name	Synonyms (do not use)
299.4453	79-01-6	201	trichloroethylene	trichloroethene
299.4453	75-69-4	203	trichlorofluoromethane	CFC-11
299.4453	75-01-4	211	vinyl chloride	chloroethene
299.4453	1330-20-7	346	xylene (total)	
299.4454	96-12-8	67	1,2-dibromo-3-chloropropane	DBCP
299.4454	106-93-4	68	1,2-dibromoethane	ethylene dibromide; EDB
299.4454	78-93-3	141	2-butanone	MEK; methyl ethyl ketone
299.4454	591-78-6	124	2-hexanone	methyl butyl ketone
299.4454	108-10-1	147	4-methyl-2-pentanone	methyl isobutyl ketone
299.4454	67-64-1	3	Acetone	
299.4454	107-13-1	8	acrylonitrile	
299.4454	74-97-5	28	bromochloromethane	chlorobromomethane
299.4454	75-15-0	35	carbon disulfide	
299.4454	110-57-6	73	trans-1,4-dichloro-2-butene	

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**Subject:** Appendix E – MDEQ Environmental Laboratory  
Data Qualifier Codes

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Qualifier Code	Qualifier Description
1	Result(s) and RL(s) are estimated due to low surrogate recovery.
2	Result is estimated due to high surrogate recovery.
3	Result(s) and RL(s) are estimated due to low matrix spike recovery.
4	Result is estimated due to high matrix spike recovery.
5	Result and RL are estimated due to low continuing calibration standard criteria failure.
6	Result is estimated due to high continuing calibration standard criteria failure.
7	Result(s) and RL(s) are estimated due to poor precision.
8	Result(s) and RL(s) are estimated due to low recovery of batch QC.
9	Result outside QC acceptance criteria.
A	Value reported is the mean of two or more determinations.
C	Value calculated from other independent parameters.
D	Analyte value quantified from a dilution(s); reporting limit (RL) raised.
E	Result is estimated due to high recovery of batch QC.
F	Amenable cyanide was not analyzed due to low level of total cyanide.
G	Result and RL are estimated due to initial calibration standard criteria failure.
H	Recommended laboratory holding time was exceeded.
I	Dilution required due to matrix interference; reporting limit (RL) raised.
J	Analyte was positively identified. Value is an estimate.
JA	Result is estimated due to multiple Aroclors present.
JC	Result is estimated since confirmation analysis did not meet acceptance criteria.
JD	Due to severe degradation, specific Aroclor identification is difficult and quantitation is estimated.
K	RL(s) raised due to matrix interferences.
KR	RL(s) raised due to low sample volume submitted.
KS	RL(s) raised due to low total solids.
KW	RL(s) raised due to light sample weight.
LB	Reported library search compounds are tentative identifications with estimated concentrations.
M	The level of the method preparation blank (MPB) is reported in the qualifier column.
N	Non-homogeneous sample made analysis of sample questionable.
O	Result and RL estimated due to analysis from an open vial.
O	Recommended sample collection/preservation technique not used; reported result(s) is an estimate.
Q	Quantity of sample insufficient to perform analyses requested.
R	Result confirmed by re-extraction and analysis.
S	Supernatant analyzed.
T	Reported value is less than the reporting limit (RL). Result is estimated.
V	Value not available due to dilution.
W	Reported value is less than the method detection limit (MDL).
X	Methods 8260 and 624 are used to analyze volatile organics that have boiling points below 200°C. 2-Methylnaphthalene and naphthalene have boiling points above 200°C and are better suited to analysis by methods 8270 or 625 as semivolatile organics.
PI	Possible interference may have affected the accuracy of the laboratory result.
Z	Result reported below the RL to meet the TDL in RRD Op Memo 2 (10/22/04) multiplied by applicable dilution factor.